

Table 10

HHI Calculations

Digital : Analog / 1 : 1

Entry of Two SMRs with 5 MHz Each

Firms	Pre-SMR Entry			Post-SMR Entry		
	Bandwidth	Market Share	HHI Contribution	Bandwidth	Market Share	HHI Contribution
Cellular 1	25	14.7%	216	25	13.9%	193
Cellular 2	25	14.7%	216	25	13.9%	193
3	30	17.6%	311	30	16.7%	278
4	30	17.6%	311	30	16.7%	278
5	20	11.8%	138	20	11.1%	123
6	10	5.9%	35	10	5.6%	31
7	10	5.9%	35	10	5.6%	31
8	10	5.9%	35	10	5.6%	31
9	10	5.9%	35	10	5.6%	31
SMR 10				5	2.8%	8
SMR 11				5	2.8%	8
Totals	170		1,332	180		1,204
Herfindahl-Hirschman Analysis			1,332	1,204		

Source: FCC, Second Report and Order ; Charles River Associates.

Table 11A

HHI Calculations

Digital : Analog / 1 : 1

Entry of One SMR with 10 MHz

Firms	Pre-SMR Entry			Post-SMR Entry		
	Bandwidth	Market Share	HHI Contribution	Bandwidth	Market Share	HHI Contribution
Cellular 1	35	20.6%	424	35	19.4%	378
Cellular 2	35	20.6%	424	35	19.4%	378
3	40	23.5%	554	40	22.2%	494
4	40	23.5%	554	40	22.2%	494
5	20	11.8%	138	20	11.1%	123
SMR 6				10	5.6%	31
Totals	170		2,093	180		1,898
Herfindahl-Hirschman Analysis			2,093			1,898

Source: FCC, Second Report and Order ; Charles River Associates.

Table 11B

HHI Calculations

Digital : Analog / 1 : 1

One SMR with 10 MHz

Firms	Initial Bandwidth	Market Share	HHI Contribution	Acquired Bandwidth	Final Bandwidth	Market Share	HHI Contribution
Cellular 1	35	19.4%	378	5	40	22.2%	494
Cellular 2	35	19.4%	378		35	19.4%	378
3	40	22.2%	494		40	22.2%	494
4	40	22.2%	494		40	22.2%	494
5	20	11.1%	123	-5	20	11.1%	123
SMR 6	10	5.6%	31		5	2.8%	8
Totals	180		1,898		180		1,991
Herfindahl-Hirschman Analysis			Initial HHI	1,898			
			Change	93			
			Final HHI	1,991			

Source: FCC, Second Report and Order ; Charles River Associates.

Table 12

CTIA PROPOSAL

HHI Calculations

Digital : Analog / 6 : 1

Firms	With Analog Handicap (10MHz)				Without Analog Handicap			
	Bandwidth	Effective Capacity*	Market Share	HHI Contribution	Bandwidth	Effective Capacity*	Market Share	HHI Contribution
Cellular 1	25	100	10.9%	118	25	150	14.7%	216
Cellular 2	25	100	10.9%	118	25	150	14.7%	216
3	20	120	13.0%	170	20	120	11.8%	138
4	20	120	13.0%	170	20	120	11.8%	138
5	20	120	13.0%	170	20	120	11.8%	138
6	20	120	13.0%	170	20	120	11.8%	138
7	10	60	6.5%	43	10	60	5.9%	35
8	10	60	6.5%	43	10	60	5.9%	35
9	10	60	6.5%	43	10	60	5.9%	35
10	10	60	6.5%	43	10	60	5.9%	35
Totals	170	920		1,087	170	1,020		1,125
Herfindahl-Hirschman Analysis				1,087	1,125			

* Effective Capacity is defined as bandwidth devoted to digital multiplied by the ratio of digital's advantage over analog plus bandwidth devoted to analog.

Source: Charles River Associates.



May 20, 1994

The Honorable Reed E. Hundt
Chairman
Federal Communications Commission
1919 M Street, N.W.
Room 814
Washington, D.C. 20554

Re: General Docket No. 90-314
Personal Communications Services

CTIA

Cellular
Telecommunications
Industry Association
1250 Connecticut
Avenue, N.W.
Suite 200
Washington, D.C. 20036
202-785-0081 Telephone
202-331-8112 Fax
202-736-3213 Direct Dial

Thomas E. Wheeler
President / CEO

Dear Chairman Hundt:

I must register the alarm of the wireless telecommunications industry over the blatant last minute spectrum grab being proposed by the Mobile Satellite Service Industry Spectrum Coalition (MSS Coalition). At this late stage in the personal communications services (PCS) rulemaking -- and without any procedural notice -- the MSS Coalition, led by Comsat, is urging the Commission to repudiate the PCS spectrum allocation decision made last September. Commission acquiescence would delay both licensed and unlicensed PCS providers' access to spectrum -- which, in reality, is of questionable, if any, use to MSS in the near term. Acceptance of the MSS proposals would also start a cascading effect through the allocation table involving broadcasters access to spectrum for ENG use as well as MDS spectrum for wireless cable operators.

The MSS Coalition and its members have had a virtual "Plan du Jour" which they have been floating. At the root of all these plans, are "Chicken Little" claims about WARC-92 MSS allocations which today are unusable (because the non-PCS half is occupied by auxiliary broadcast services).

Any of the MSS Coalition's scenarios for reconstitution of the PCS allocation plan will throw the PCS process into greater turmoil and uncertainty. Licensing will be further delayed by further recommendation of new allocations. Manufacturers are likely to halt their design and fabrication efforts until they know what spectrum will be available. The investment community may also be spooked, further destabilizing the auction and business plans of the perspective PCS licensees. Surely, you recall the clear message communicated at the PCS roundtable discussions last month: avoid additional delay in PCS licensing at all cost.

The MSS Coalition's plan would additionally result in less spectrum to auction, and thus, smaller auction proceeds for taxpayers. As you know, the MSS industry is working hard to avoid mutual exclusivity in licensing. Assuming they are able to achieve that goal, MSS licenses will not pay for their spectrum. The MSS Coalition's plan would, thus, be a double whammy to the U.S. Treasury.

Letter to the Honorable Reed E. Hundt
May 20, 1994
Page 2



The multiple scenarios for swapping unlicensed and licensed allocations would do serious damage to the viability of unlicensed PCS operations due to the greater number of incumbent microwave links that must be removed from the upper PCS spectrum bands. While the smaller channels utilized within those bands may permit some sharing between unlicensed PCS and incumbent microwave operations, ultimately, the microwave links would have to be moved if unlicensed services are to reach their maximum potential. For providers of "nomadic" unlicensed PCS services, who assert that their spectrum must be totally clear nationwide, the greater number of microwave links in the upper band would seem to constitute a fatal blow.

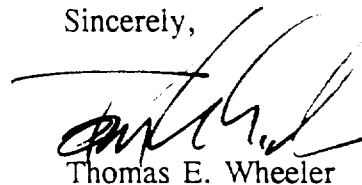
The elimination of the upper band allocation to PCS, and the availability of new spectrum for cellular companies within their existing territories, would again be a significant alteration of the current PCS rules. Such action by the Commission would also destroy the asserted basis for the creation of the huge 30 MHz/Major Trading Area licenses in the lower PCS Spectrum band. To give new wireless entrants such huge amounts of spectrum and territory while foreclosing cellular companies from additional spectrum to expand their operations and deliver new services would be grossly unfair and arbitrary. Any such change would result in vehement opposition by CTIA and its membership.

As referenced previously, any of the MSS Coalition's various plan are specious because its PCS spectrum is paired with spectrum currently utilized by television broadcasters' electronic news gathering operations. This spectrum is also not usable for international MSS operations until January 1, 2005. If MSS is to be the global service its proponents claim the restoration of the spectrum at issue is of no utility to MSS until broadcasters are moved and, even then, not for more than a decade, by international agreement.

I urge you to carefully consider the consequences of an allocation which is so encumbered to such speculative interests when the cost is harm to ongoing and imminent telecommunication services.

The clear choice is to proceed with PCS and address the needs of MSS at a later time and perhaps with additional spectrum soon to be with the Commission's jurisdiction.

Sincerely,



Thomas E. Wheeler

Stamp + Return



Building The
Wireless Future.

CTIA

Cellular
Telecommunications
Industry Association
1250 Connecticut
Avenue, N.W.
Suite 200
Washington, D.C. 20036
202-785-0081 Telephone
202-785-0721 Fax
202-736-3256 Direct Dial

Randall S. Coleman
Vice President for
Regulatory Policy and Law

May 4, 1994

RECEIVED

MAY - 4 1994

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

BY HAND

Mr. William F. Caton
Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, DC 20554

Re: *Ex Parte* Presentation
GEN Docket No. 90-314

Dear Mr. Caton:

On Wednesday, May 4, 1994, the Cellular Telecommunications Industry Association (CTIA), represented by Messrs. John T. Stupka of Southwestern Bell Mobile Systems, Dennis F. Strigl of Bell Atlantic Mobile Systems, James A. Dwyer of Independent Cellular Network, Michael E. Kalogris of Horizon Cellular, and Thomas E. Wheeler and Randall S. Coleman of CTIA, made two presentations to the Commission concerning the referenced rulemaking. The first meeting was with Mr. Rudolfo M. Baca of Commissioner James H. Quello's office. The second meeting included Chairman Reed E. Hundt, his Special Assistant, Ms. Karen Brinkmann, and Dr. Robert M. Pepper, Mr. Donald Gips and Mr. Gregory Rosston of the Office of Plans and Policy. The views expressed in this meeting, as summarized in the attached presentation materials, reflect CTIA's position as previously filed in this docket.

Pursuant to Section 1.1206(a)(1) of the Commission's Rules, an original and one copy of this letter and attached presentation materials are being filed with your office.

If you have any questions concerning this submission, please contact the undersigned.

Sincerely,


Randall S. Coleman

Attachment

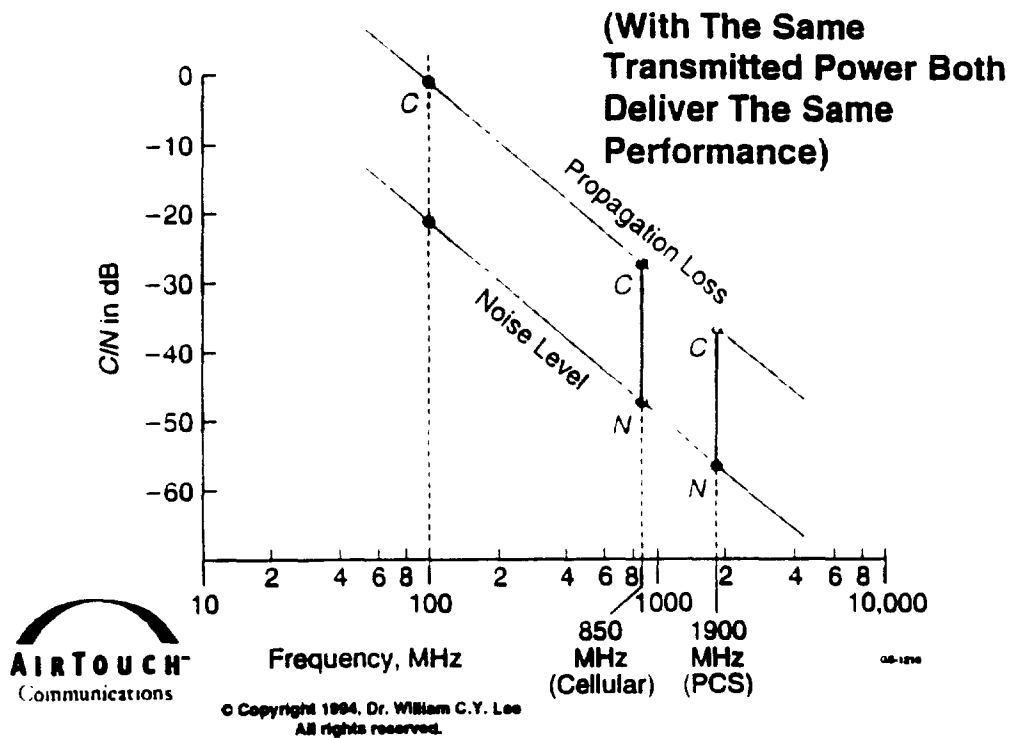


Why Cellular Operators Care About PCS Decision

It's Good Spectrum

- 800 MHz and 2 GHz functionally equivalent

*C/N Remains Constant Between
850 MHz And 1900 MHz*



It Opens Opportunities

- In territory: new services
- Out of territory: new markets

**How Much Spectrum To Be Viable?**

All Block Sizes Are Viable

Cellular-Viable With 25 MHz (analog)

Required Usable Spectrum For Equivalence

- Analog 25 MHz
- TDMA 8.4 MHz
- MIRS 3.5 MHz
- CDMA 2.5 MHz

The successful bidder wants the largest possible block

- Digital means smaller spectrum has same capacity

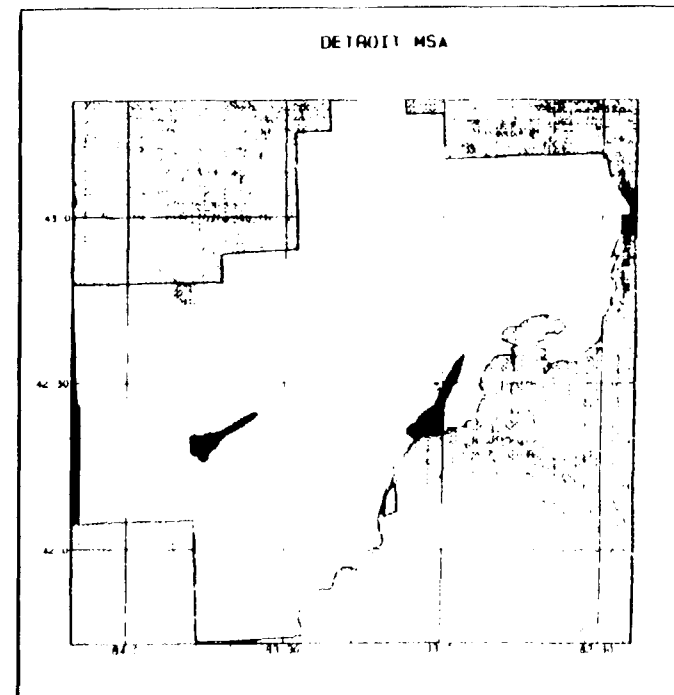
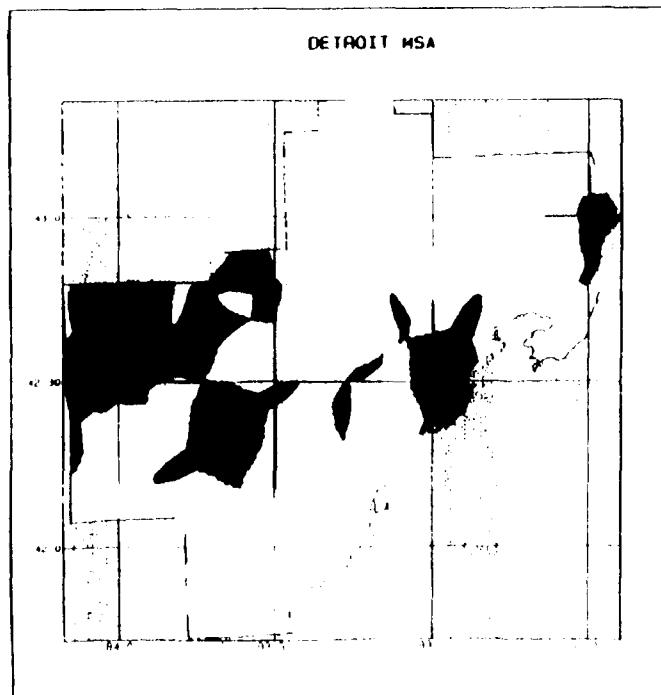


But What About . . .**Cellular "Head Start"**

- | | | |
|-----------------------------|----|--------------------------|
| ● Non-wireline cellular | v. | wireline head start |
| ● MCI & Sprint | v. | AT&T 100 year head start |
| ● Southwest Airlines, et al | v. | United Airlines, et al |

Microwave Congestion

- Answer depends on the question



**Competitive Spectrum Parity**

Simple parity -- If 40 MHz is cap, cellular should be allowed to reach that cap

Capacity disparity -- Even with 40 MHz, cellular won't have equivalent capacity

- PCS all digital
 - Cellular must retain at least 10 MHz for analog
 - ✓ Universal service obligation
 - ✓ 16 million subscribers
 - ✓ Digital incompatibility default
-

**Let's Move Forward**

PCS has evolved from an unknown to an opportunity

- Cellular can provide service
 - ✓ In territory: new services
 - ✓ Out of territory: new markets

How to best move forward. . .

- Building blocks encourage:
 - ✓ spectrum efficiency
 - ✓ rapid deployment
 - ✓ maximum opportunity
 - ✓ maximum equality
 - ✓ maximum competition
 - Attribution and overlap
 - ✓ large license areas + strict limits = growth preclusion
 - Clearing spectrum aggressively
 - ✓ Front end solution vs. back end large blocks
-

**Let's Move Forward****How to Best Move Forward . . .**

- Post-Auction Flexibility
 - ✓ Disaggregation of spectrum
 - ✓ Disinvestment

 - Small Business Encouragement
 - ✓ Encourage entrepreneurs
 - ✓ Discourage "rent a SWMR"

 - Regulatory Parity
 - ✓ Licensing
 - ✓ CMRS regulation
-



Building The
Wireless Future

CTIA

Cellular
Telecommunications
Industry Association
1250 Connecticut
Avenue, N.W.
Suite 200
Washington, D.C. 20036
202-785-0081 Telephone
202-785-0721 Fax
202-736-3256 Direct Dial

Randall S. Coleman
Vice President for
Regulatory Policy and Law

May 3, 1994

BY HAND

Mr. William F. Caton
Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, DC 20554

Re: *Ex Parte* Presentation
GEN Docket No. 90-314

Dear Mr. Caton:

On Tuesday, May 3, 1994, the Cellular Telecommunications Industry Association (CTIA), represented by Mr. John T. Stupka of Southwestern Bell Mobile Systems, Mr. John K. Dion of GTE Personal Communications Services and Mr. Thomas E. Wheeler of CTIA met with Commissioner Andrew C. Barrett and his Senior Legal Advisor, Byron F. Marchant. The views expressed in this meeting, as summarized in the attached presentation materials, reflect CTIA's position as previously filed in this docket.

Pursuant to Section 1.1206(a)(1) of the Commission's Rules, an original and one copy of this letter and attached presentation materials are being filed with your office.

If you have any questions concerning this submission, please contact the undersigned.

Sincerely,

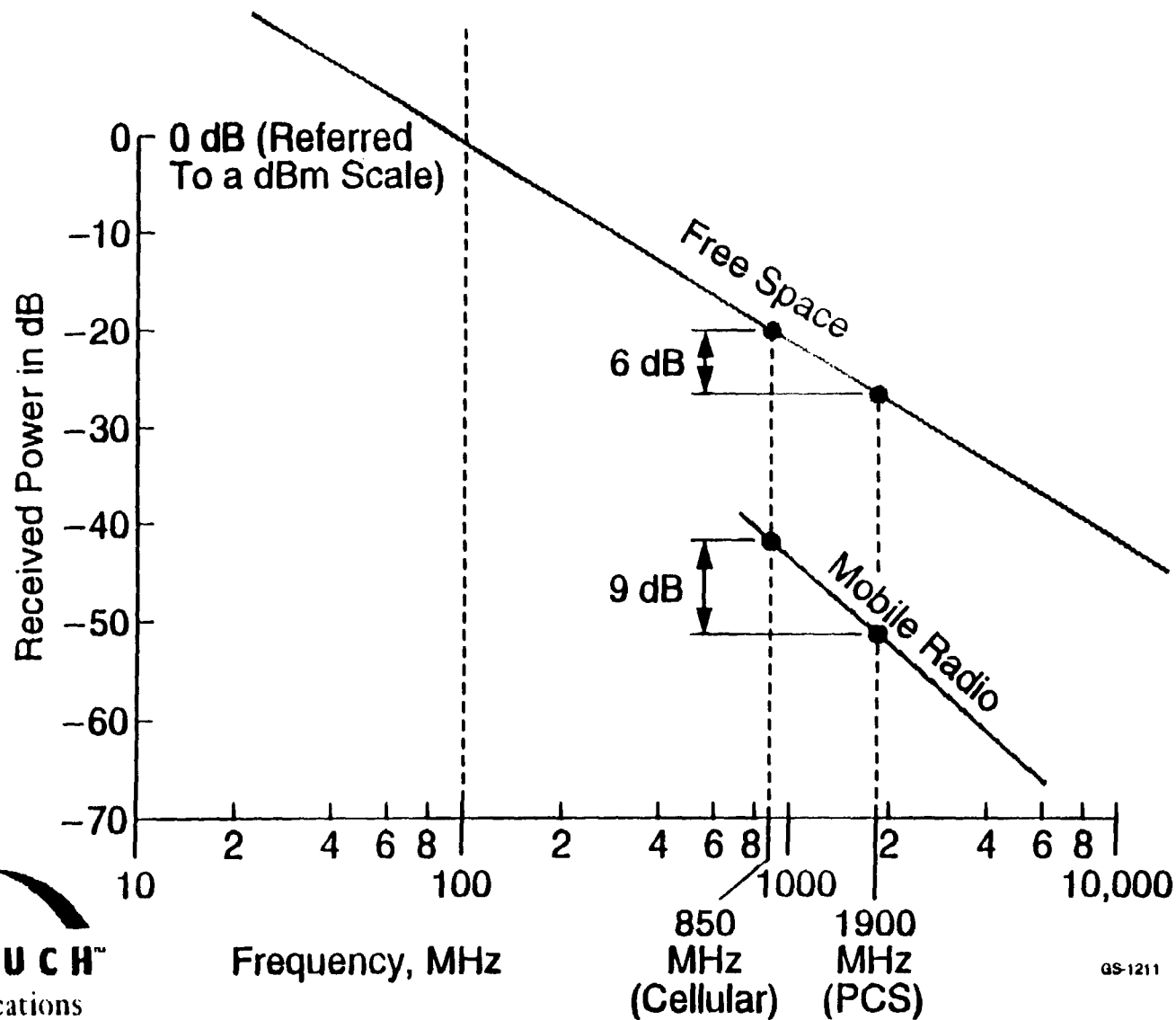

Randall S. Coleman

Attachment

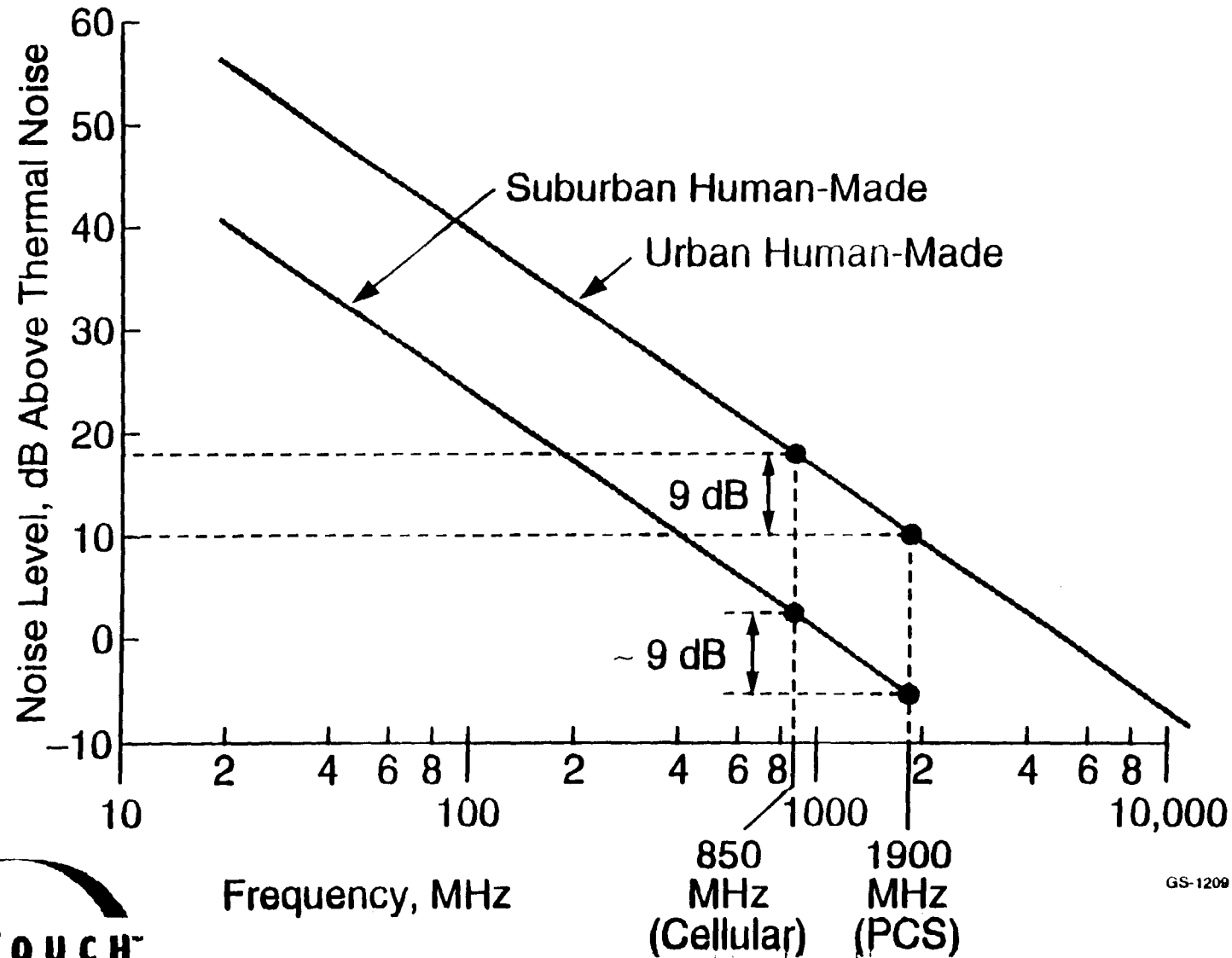
Technology Briefing Book

**Cellular Telecommunications Industry Association
May 3, 1994**

Received Carrier Power (C) Between Cellular And PCS



Human-Made Noise Between Cellular And PCS

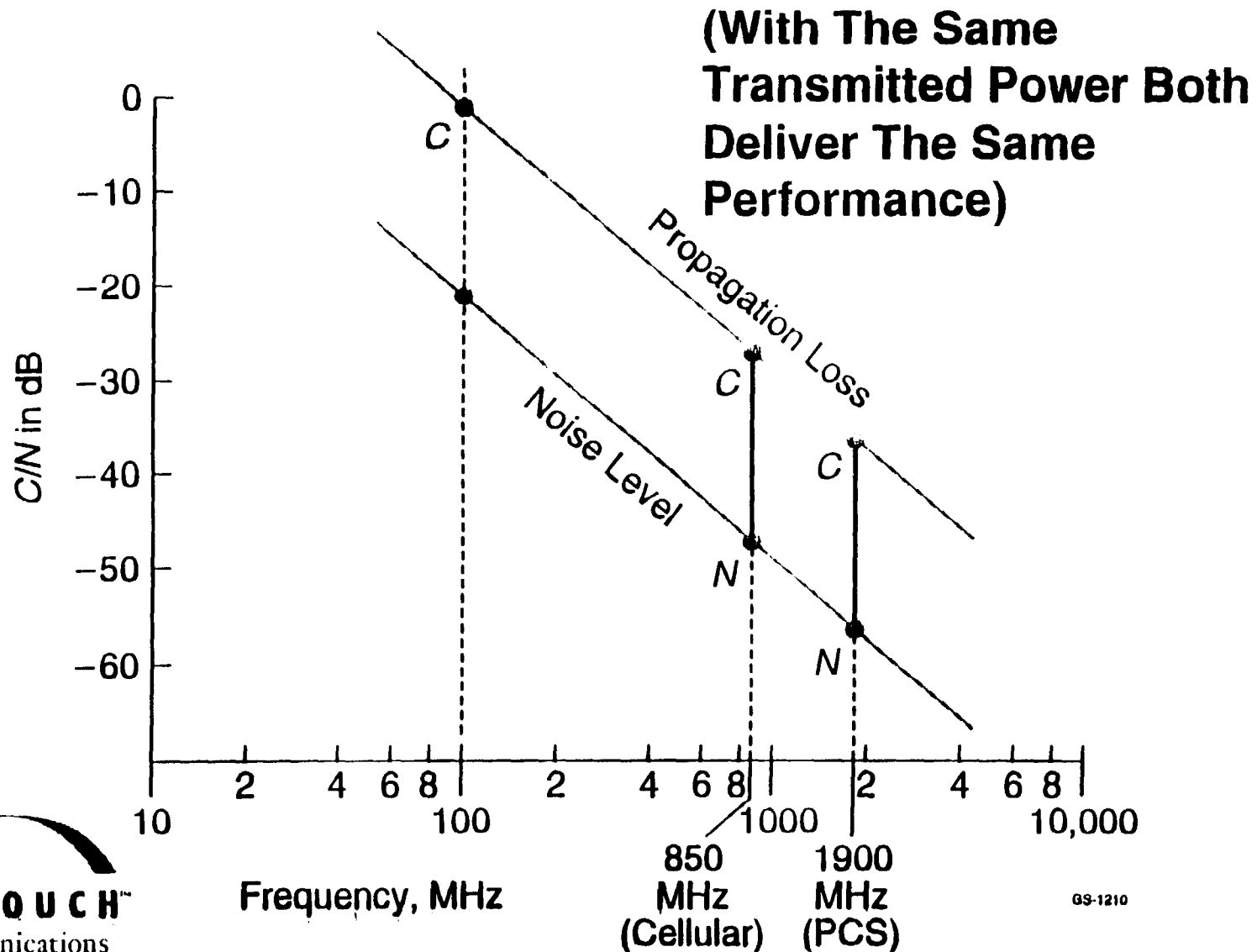


GS-1209



© Copyright 1994, Dr. William C.Y. Lee
All rights reserved.

C/N Remains Constant Between 850 MHz And 1900 MHz



© Copyright 1994, Dr. William C.Y. Lee
All rights reserved.

GS-1210



COMSEARCH STUDIES

The answer depends on the question asked

Detroit and San Francisco

1 watt power (above safety standard)

TDD

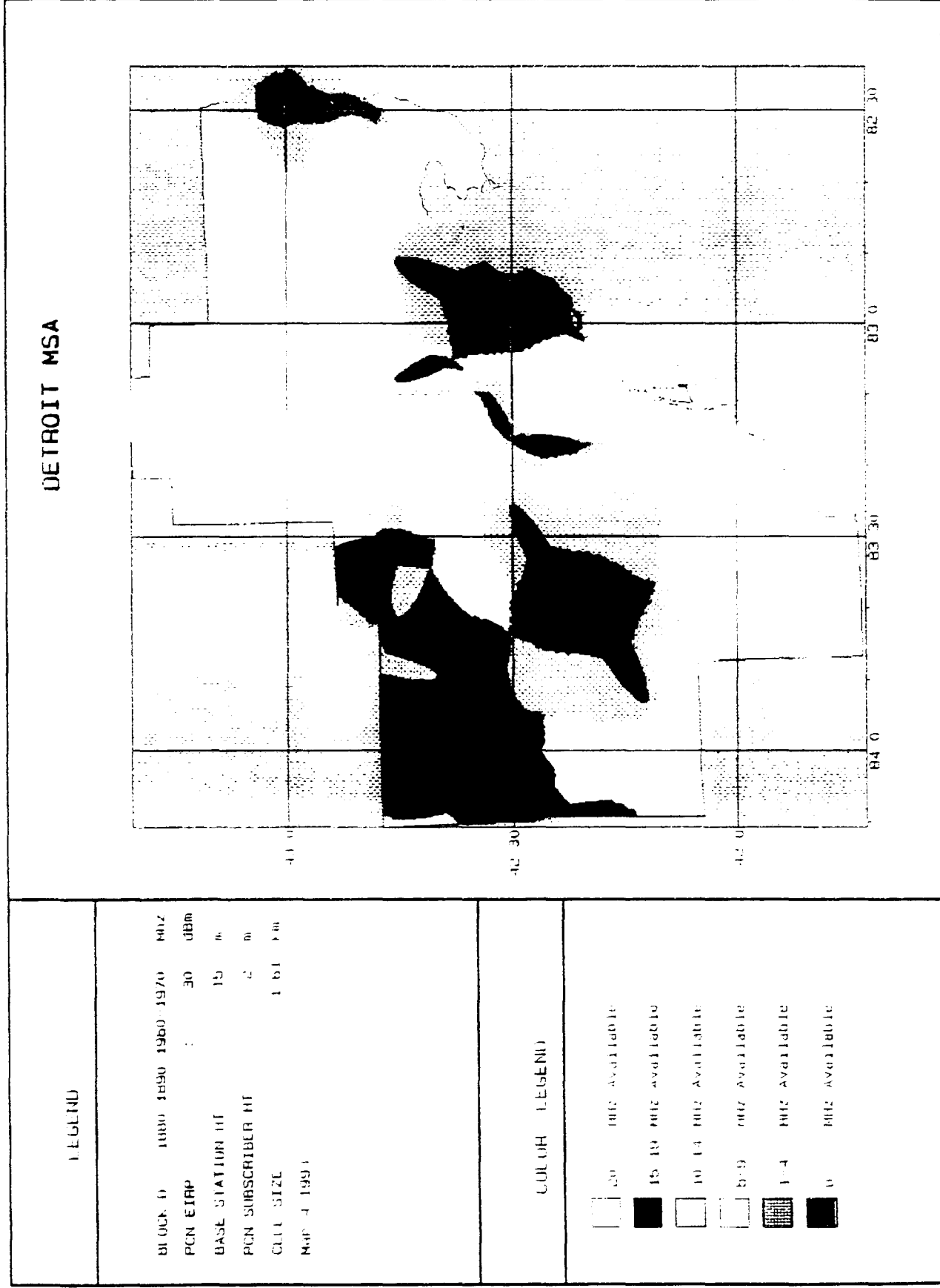
Tower heights

No mitigation (i.e., filter installation)

Atlanta

Power levels

Antenna heights



COMSAR 11

Figure 4.1-1 20 MHz Allocation, Block D, Current Spectrum Availability

Same Data Re-run With Valid Assumptions

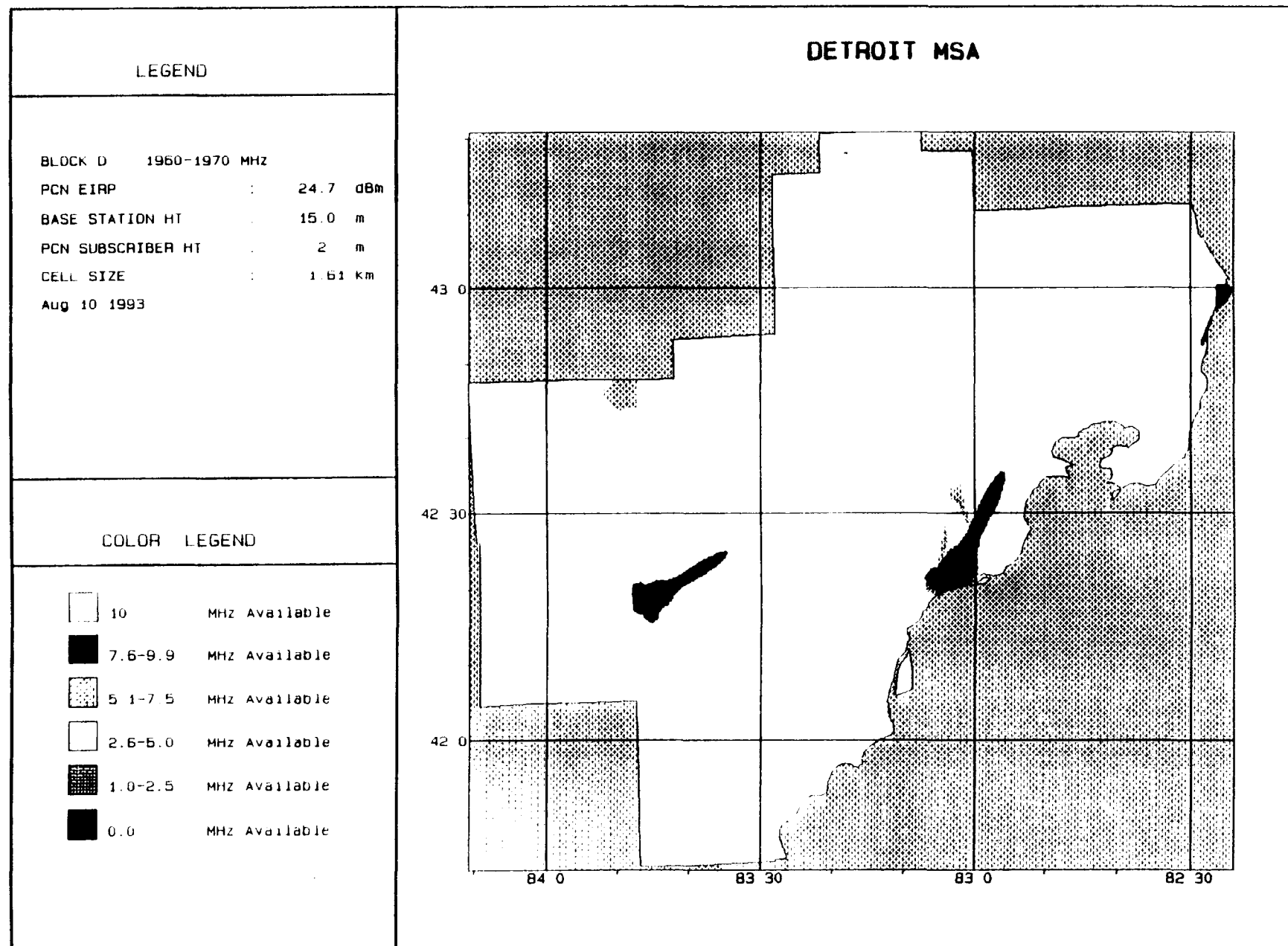
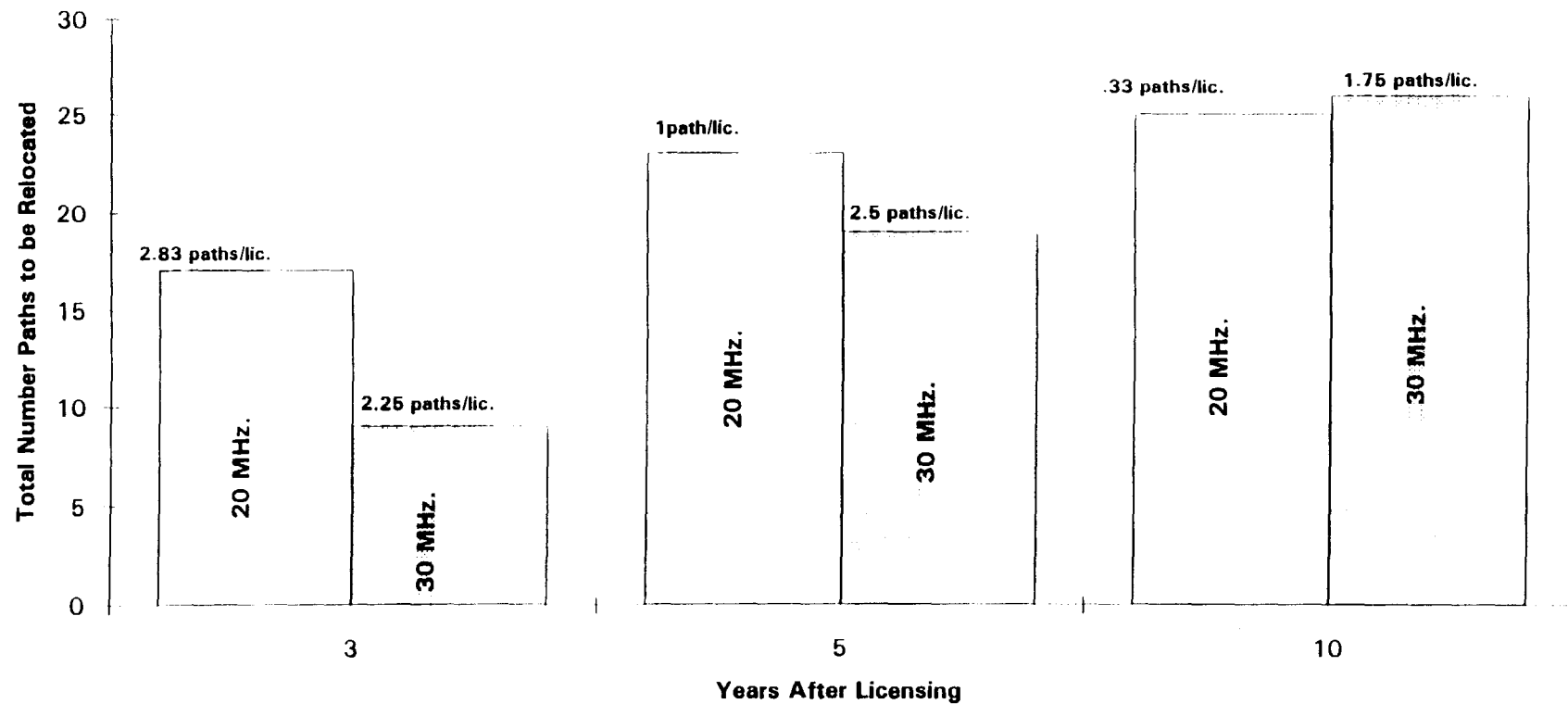


Figure 3.2-7 20 MHz - Block D (1960-1970 MHz) Current Spectrum Available COMSEARCH



Paths per Licensee to be Relocated

"Relocations will be time-consuming and difficult: five relocations per year per PCS licensee is the maximum that can be expected."



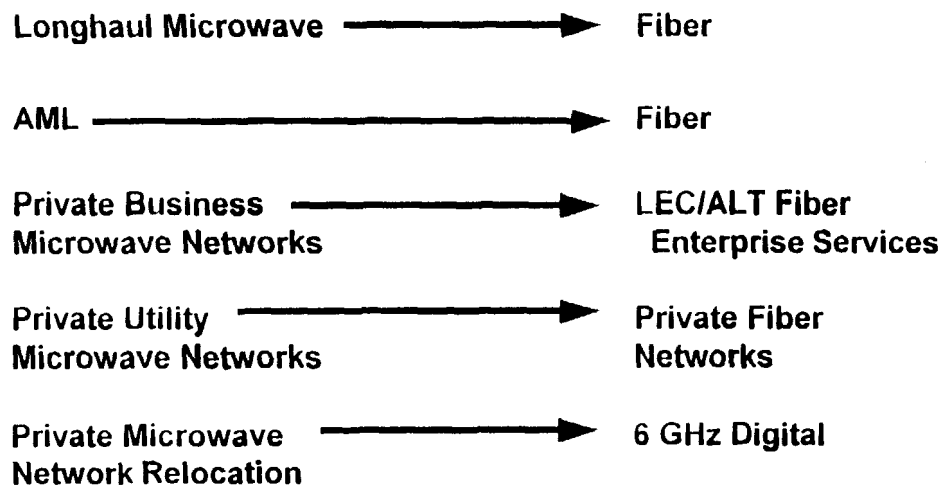
Comsearch April 12, 1993 (fig.4.2-4)

**"LICENSED" SPECTRUM DOESN'T MEAN "USED" SPECTRUM**

Detroit offending paths

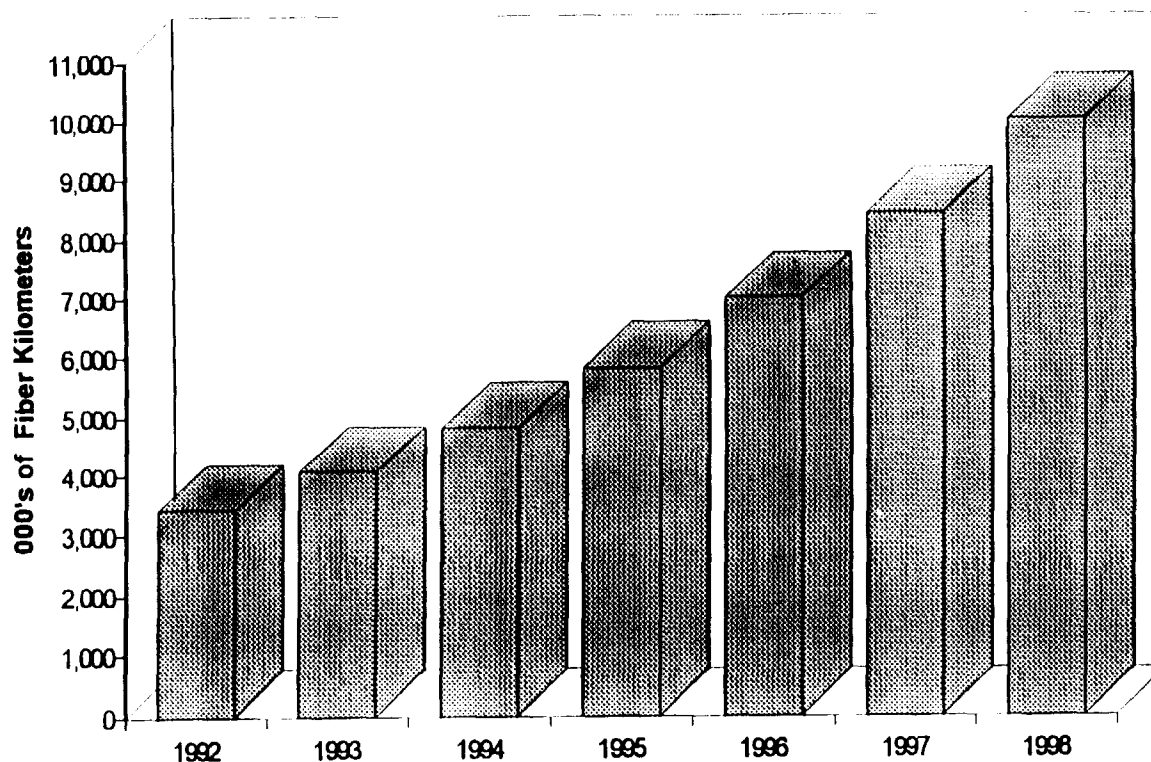
- only 20 to 50 percent loaded

Spectrum Migration Trends





U. S. Singlemode Fiber Deployment



Source: KMI corp.